IN THE CLAIMS:

The listing of claims below is intended to replace all prior listings of claims presented in the above-identified application.

Claims 1 – 22 (CANCELLED).

23. (CURRENTLY AMENDED) A recombinant pox virus comprising a nucleic acid sequence encoding an immunogenic MUC1 fragment comprising 5 to 25 MUC1 tandem repeat units, the nucleic acid sequence comprising ~~said tandem repeat unit having an~~

a first nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1 as one of the tandem repeat units; and

a second nucleotide sequence encoding 4 to 24 copies of the amino acid sequence of SEQ ID NO:1 as the other 4 to 24 tandem repeat units, the second nucleotide sequence comprising 4 to 24 instances of an altered nucleotide ~~, wherein said nucleic acid~~ sequence ~~is altered from~~ of SEQ ID NO:2 by ~~using~~ changing wobbled nucleotides of the codons of SEQ ID NO:2, the 4 to 24 instances encoding the other 4 to 24 tandem repeat units~~to reduce homology between the tandem repeat units while retaining the amino acid sequence of SEQ ID NO:1~~.

24. (CURRENTLY AMENDED) The recombinant pox virus of claim 23, wherein the immunogenic MUC1 fragment comprises ~~7 to 15 MUC1~~ 6 to 14 tandem repeat units.

25. (CURRENTLY AMENDED) The recombinant pox virus of claim 24, wherein the immunogenic MUC1 fragment comprises ~~10 MUC1~~ 9 tandem repeat units.

26. (PREVIOUSLY PRESENTED) The recombinant pox virus of claim 23, wherein the pox virus is selected from the group consisting of orthopox, suipox and avipox.

27. (CURRENTLY AMENDED) A pharmaceutical composition comprising a recombinant pox virus comprising a nucleic acid sequence encoding an immunogenic MUC1 fragment

comprising 5 to 25 MUC1 tandem repeat units, the nucleic acid sequence comprising ~~said tandem repeat unit having an~~

a first nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1 as one of the tandem repeat units;

a second nucleotide sequence encoding 4 to 24 copies of the amino acid sequence of SEQ ID NO:1 as the other 4 to 24 tandem repeat units, the second nucleotide sequence comprising 4 to 24 instances of an altered nucleotide ~~, wherein said nucleic acid~~ sequence ~~is altered from~~ of SEQ ID NO:2 by ~~using~~ changing wobbled nucleotides of the codons of SEQ ID NO:2, the 4 to 24 instances encoding the other 4 to 24 tandem repeat units~~to reduce homology between the tandem repeat units while retaining the amino acid sequence of SEQ ID NO:1,~~; and

a third nucleotide sequence encoding an immunomodulator.

28. (PREVIOUSLY PRESENTED) The pharmaceutical composition of claim 27, wherein the immunomodulator is selected from the group consisting of T-cell co-stimulatory factors and cytokines.

29. (PREVIOUSLY PRESENTED) The pharmaceutical composition of claim 28, wherein the cytokine is an interleukin.

30. (PREVIOUSLY PRESENTED) The pharmaceutical composition of claim 27, wherein the immunomodulator is both a T-cell co-stimulatory factor and a cytokine.

31. (PREVIOUSLY PRESENTED) The recombinant pox virus of claim 27, wherein the pox virus is selected from the group consisting of orthopox, suipox and avipox.

32. – 33. CANCELLED

34. (CURRENTLY AMENDED) The pharmaceutical composition of claim 27, wherein said MUC1 fragment comprises about ~~7 to 15~~ 6 to 14 tandem repeat units.

35. (CURRENTLY AMENDED) A method of generating an immune response in a mammal having a MUC1-expressing tumor, the method comprising:

(a) administering to the mammal the pox virus of claim 23 as a first pox virus; and

(b) administering ~~a second~~ an amount of a second pox virus ~~wherein the pox virus is~~ selected from the group consisting of orthopox, suipox and avipox.

36. (CURRENTLY AMENDED) The method of claim 35, wherein ~~said boosting is administered by using an effective~~ the second ~~amount of second recombinant~~ pox virus is from a ~~different~~ viral genus different from said pox virus of ~~claim 1~~ step (a).

37. (PREVIOUSLY PRESENTED) The method of claim 35, ~~wherein said mammal is further administered~~ further comprising administering to the mammal an immunomodulator.

38. - 40. CANCELLED

41. (CURRENTLY AMENDED) A method for generating an immune response in a mammal that contains a MUC1-expressing tumor, the method comprising administering to said mammal ~~at least one~~ the pox virus of claim 26.

42. (PREVIOUSLY PRESENTED) The recombinant pox virus of claim 23, wherein the pox virus is MVA.

43. – 44. CANCELLED

45. (CURRENTLY AMENDED) The method of claim ~~44~~ 37, wherein the immunomodulator is a cytokine or a co-stimulatory molecule.

46. (PREVIOUSLY PRESENTED) The method of claim 45, wherein said co-stimulatory molecule B7.

47. (PREVIOUSLY PRESENTED) The method of claim 46, wherein said B7 is B7.1 or B7.2.

48. (PREVIOUSLY PRESENTED) The method of claim 45, wherein the cytokine is an interleukin.

49. (CURRENTLY AMENDED) The method of claim ~~43~~ 35, wherein said first ~~recombinant pox virus vector is a~~ pox virus ~~vector~~ is selected from the group consisting of an orthopox virus vector, an avipox virus vector, a suipox virus vector, and a capripox virus vector.

50. (CURRENTLY AMENDED) The method of claim 49, wherein the first ~~recombinant~~ pox virus ~~vector~~ is an orthopox virus ~~vector~~.

51. (CURRENTLY AMENDED) The method of claim 50, wherein the orthopox virus ~~vector~~ is a vaccinia virus ~~vector~~.

52. (PREVIOUSLY PRESENTED) The method of claim 50, wherein the vaccinia virus is an MVA.

53. CANCELLED

54. (CURRENTLY AMENDED) The method of claim ~~43~~ 35, wherein the first ~~recombinant~~ pox virus ~~vector~~ is an orthopox virus ~~vector~~ and the second ~~recombinant~~ pox virus ~~vector~~ is an avipox virus ~~vector~~.

55. (CURRENTLY AMENDED) The method of claim 54, wherein the avipox virus ~~vector~~ is a fowlpox virus ~~vector~~.

56. (PREVIOUSLY PRESENTED) The method of claim 54, wherein the orthopox virus is a vaccinia virus.

57. (PREVIOUSLY PRESENTED) The method of claim 56, wherein the vaccinia virus is MVA.

58. (CURRENTLY AMENDED) The method of claim ~~43~~ 35, wherein said first ~~recombinant~~ pox virus ~~vector~~ further comprises a nucleic acid ~~sequences~~ sequence encoding an immunomodulator.

59. (CURRENTLY AMENDED) The method of claim ~~43~~ 35 or 58, wherein the second ~~recombinant~~ pox virus ~~vector~~ further comprises a nucleic acid ~~sequences~~ sequence encoding an immunomodulator.

60. (CURRENTLY AMENDED) The recombinant pox virus of claim 23, wherein ~~the altered nucleic acid sequences are~~ at least one of the instances of an altered nucleotide sequence is selected from the group consisting of SEQ ID NOS: ~~2~~ 4 -12.

61. (CURRENTLY AMENDED) The pharmaceutical composition of claim 27, wherein ~~the altered nucleic acid sequences are~~ at least one of the instances of an altered nucleotide sequence is selected from the group consisting of SEQ ID NOS: ~~2~~ 4 -12.

62. (CURRENTLY AMENDED) The method of claim ~~43~~ 35, wherein ~~the altered nucleic acid sequences are~~ at least one of the instances of an altered nucleotide sequence is selected from the group consisting of SEQ ID NOS: ~~2~~ 4 -12.

63. (CURRENTLY AMENDED) A recombinant pox virus comprising a nucleic acid sequence encoding an immunogenic MUC1 fragment comprising 5 to 25 MUC1 tandem repeat units, the nucleic acid sequence comprising ~~said tandem repeat unit having an~~

a first nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1 as one of the tandem repeat units; and

a second nucleotide sequence comprising 4 to 24 altered nucleotide sequences encoding 4 to 24 altered tandem repeats, wherein ~~said nucleic acid sequence~~ each altered tandem repeat is altered from SEQ ID NO:2 by substituting at least one codon in SEQ ID NO:1 such that each altered nucleotide sequence ~~the nucleic acid codes for a conservative amino acid change, wherein said conservative amino acid change~~ is selected from the group consisting of substituting at least one of the glycines in the SEQ ID NO:1 to serine, substituting at least one of the serines in the SEQ ID NO:1 to glycine, and substituting the valine in the SEQ ID NO:1 to leucine.

64. (CURRENTLY AMENDED) A recombinant pox virus comprising a nucleic acid sequence encoding an immunogenic MUC1 fragment comprising 6 identical tandem repeat units, the nucleic acid sequence comprising ~~said tandem repeat unit having an~~

a first nucleotide sequence encoding the amino acid sequence of SEQ ID NO:1 as one of the tandem repeat units; and

a second nucleotide sequence encoding 5 copies of the amino acid sequence of SEQ ID NO:1 as the other 5 tandem repeat units, the second amino acid sequence comprising 5 instances of an altered nucleotide~~, wherein said nucleic acid~~ sequence ~~is altered from~~ of SEQ ID NO:2 by ~~using~~ changing wobbled nucleotides of the codons of SEQ ID NO:2, the 5 instances encoding the other 5 tandem repeat units ~~to reduce homology between the tandem repeats units while retaining the amino acid sequence of SEQ ID NO:1~~.